

ABSTRACT

The adhesion between bonding pads and ball portions of gold wires is to be improved to improve the reliability of a semiconductor device. About 1 wt.% of Pd is contained in gold wires for connection between electrode pads formed on a wiring substrate and electrode pads (exposed areas of a top layer wiring formed mainly of Al) formed on a semiconductor chip, whereby, in bonded portions between the electrode pads formed on the semiconductor chip and ball portions of the gold wires, an interdiffusion of Au and Al is suppressed to prevent the formation of Au_4Al after PCT (Pressure Cooker Test). Since the formation of Au_4Al which is apt to corrode is prevented, a desired bonding strength of the gold wires is obtained even in the case where the pitch of the electrode pads formed on the semiconductor chip is smaller than $65\text{ }\mu\text{m}$ and the diameter of the ball portion of each gold wire is smaller than $55\text{ }\mu\text{m}$ or the diameter of the wire portion of each gold wire is not larger than $25\text{ }\mu\text{m}$. The desired bonding strength can be ensured also in the case where the top layer wiring is very thick or thin or the bonding temperature is very low.